Salient Selves in Uncertain Futures

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Abstract

We examined possible selves during three distinct periods of uncertainty. Cancer survivors (Study 1a) and survivors' romantic partners (Study 1b) rated the salience of possible selves in which the cancer did (negative possible self; NPS) and did not (positive possible self; PPS) return. Study 2 mapped PPS and NPS salience throughout the four-month wait for bar exam results. Study 3 experimentally primed possible selves among participants awaiting medical test results. PPS salience correlated positively, and NPS negatively, with indicators of health and well-being, and inducing focus on one's NPS led to greater negative emotion and worry compared to a PPS induction, but not less positive emotion. These results illustrate the well-being implications of possible selves during periods of uncertainty.

Keywords: Possible selves; uncertainty; well-being; cancer; bar exam

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Introduction

> The imagined, or possible self…both motivates and tortures us.
>
> Robinson, (1992, p. 227)

The "self" has fascinated social and personality psychologists for centuries (e.g., Baumeister, 1998; James, 1890; Leary & Tangney, 2012). Motivated by this interest, a growing literature has documented the structure and functions of this nebulous construct. Among other discoveries, this area of study has made clear the fact that the self has a temporal component (e.g., Chandler, LaLonde, Sokol, & Hallett, 2003). Just as it makes sense to think about the self as it is currently constituted, so too is it logical to consider the self (or selves) of the past (e.g., McAdams, 2013) and the potential and probable selves that await us in the future (e.g., King & Smith, 2004; King & Raspin, 2004). The current studies contribute to an understanding of this latter aspect of the self—that is, individuals' possible selves. Over the course of three studies, we examined the salience of various possible selves within the context of both indefinite (Studies 1a, 1b, and 3) and time-limited (Studies 2 and 3) periods of uncertainty.

The Self, through Time

In their review of self and identity research, Leary and Tangney (2012) recognized over 60 constructs relevant to an understanding of the self (e.g., self-complexity, self-handicapping).[1] Thus, within social psychology alone, research on the self has taken many and wildly different forms (see also Baumeister, 1998). Despite this diversity, at least partial consensus exists regarding the unifying or necessary components of the self (e.g., Leary & Tangney, 2012). As Leary and Tangney (2012) attested, "in one way or another, the capacity for self-reflection…lies at the heart of what it means to have a self" (p. 1). Self-reflection itself may be aimed towards

[1] It is likely that this number has only increased in the years since their writing.

one's present, past, or future. Considering any and all of these temporal domains has proven to be a worthwhile endeavor (e.g., see Chandler et al., 2003; King & Raslin, 2004; McAdams, 2013). Most pertinent to the current investigation, work on individuals' future selves has most often taken the form of study of *possible selves*.

Possible Selves

Introduced to psychology's lexicon in 1986 by Markus and Nurius, possible selves represent

> individuals' ideas of what they might become, what they would like to become, and what they are afraid of becoming…[they] are the cognitive components of hopes, fears, goals, and threats, and they give the specific self-relevant form, meaning, organization, and directions. (p. 954)

These self-representations are important for a number of reasons, not the least of which being that the possible selves people envision are thought to influence their affect, cognition, and behavior on both short-term and long-term scales. For example, if a student working her way through an undergraduate degree envisions a possible self in which she attends law school, and she also believes that this self could be actualized, then she will likely demonstrate an increased motivation to perform actions believed to bring her closer to her desired goal. Possible selves, thus, often rest at the nexus between cognition and motivation.

In the years since Markus and Nurius' (1986) foundational contribution, a vast array of foci and methodologies have been employed in the interest of measuring individuals' possible selves. For example, researchers have considered possible selves pertaining to one's psychological and physical characteristics (e.g., smart, good looking), lifestyles (e.g., engaging in extreme sports), social relationships (e.g., being married), and occupations (e.g., becoming a

professor; Markus & Nurius, 1986). In addition, these and other characteristics have been examined in relation to different types of possible selves, including best possible selves (Sheldon & Lyubomirsky, 2006), academic and true possible selves (Oyserman, Bybee, & Terry, 2006), lost possible selves (e.g., King & Smith, 2004), and ought, ideal, and feared possible selves (e.g., Carver, Lawrence, & Scheier, 1999).

A number of assessment procedures have been used to assess these various features and types of selves. These procedures range from prompting participants for narrative descriptions (e.g., Sheldon & Lyubomirsky, 2006) to collecting Likert-type ratings of pre-specified items (e.g., Oyserman et al., 2006). This methodological diversity has led to numerous meaningful discoveries, which, collectively, suggest that features of individuals' possible selves—in particular, their salience—have implications for psychological adjustment (e.g., King & Smith, 2004; King & Raspin 2004; Sheldon & Lyubomirsky, 2006).

In one of the foundational studies in this area, King and Smith (2004), prompted a sample of lesbians and gay men to provide narrative descriptions and ratings of their "gay best possible selves" as well as their "lost" possible selves, predicated on the hypothetical life trajectory in which they were straight. The salience of participants' gay best possible selves was positively related to their well-being, whereas the salience of their straight, lost possible selves was negatively related to this indicator of adjustment (see also King & Raspin, 2004). As King and Raspin proposed, well-being appears to require that people refrain from thinking about what might have been but was not (i.e., lost possible selves) while embracing the best possible selves that lie ahead.

Dimensions of Possible Selves

The possible selves literature is quite diverse with respect to (among other things) the types, or categories, or possible selves that are routinely assessed. On the basis of this diversity, one can envision any number of dimensions on which these selves may be organized. One such dimension is the degree to which the possible self in question is relevant to instrumental behaviors. At one end of this continuum lie possible selves such as those considered by Oyserman and colleagues (e.g., Oyserman et al., 2006) in their experimental research examining the impact of one's academic self on scholastic performance. At the other end of this continuum lie possible selves like those considered by King (King & Raspin, 2004; King & Smith, 2004). These lost possible selves are qualitatively different from the possible academic selves considered by Oyserman and colleagues because lost possible selves, by definition, cannot be actualized – they are, by definition, lost. As such, they are untethered from motivational and behavioral processes and may exhibit an accentuated influence on coping and emotional processes instead.

A second relevant dimension to an understanding of possible selves is the degree to which these selves pertain to a finite, relative to an undefined, timeline. Returning to the work of Oyserman and colleagues (2006), one's academic possible self has no expiration date, as tests and evaluations have relevance across the lifespan. In contrast, some possible selves exist only on a finite timeline. For example, one's possible self as a graduate of a particular university is not infinitely attainable; instead, a time comes when that possible self is either actualized or lost. Currently, few studies have explored the form and function of these still (but not infinitely) possible selves.

Furthermore, returning to the first proposed dimension of possible selves, in certain as-yet unconsidered cases the connection between the cognitive and motivational aspects rests

somewhere between the academic possible selves examined by Oyserman and colleagues (2006) and the lost possible selves considered by King and Smith (2004). In particular, during some periods of stressful uncertainty about future outcomes (e.g., the wait for personally significant news), one has some but little agency over the soon-to-be realized outcome (e.g., Sweeny & Andrews, 2014; Sweeny & Cavanaugh, 2012). In others (e.g., waiting for a test result), people may have no agency in the matter at all. In contrast to the motivational effects of envisioning one's best possible academic self on motivation and performance within the scholastic domain (Oyserman et al., 2006), envisioning the possible selves associated with various outcomes following a wait for news (e.g., being diagnosed with a serious illness, passing or failing an important vocational test; Sweeny & Andrews, 2014) likely has a relatively modest impact on one's motivations and instrumental behaviors.

Considering these orthogonal dimensions simultaneously, there appears to be a sizable gap in the possible selves literature pertaining to the unique qualities of uncertain moments within one's broader life trajectory. Examining the possible selves relevant to these periods of acute uncertainty is worthwhile, given that individuals often experience heightened anxiety and persistent, unpleasant thoughts during these periods (Sweeny & Cavanaugh, 2012), and the applicable possible selves may impact emotional functioning during these periods.

Possible Selves and Stressful Periods of Acute Uncertainty

Individuals currently experiencing uncertainty about future outcomes likely have at least two possible selves that are highly salient: the future selves associated with a positive outcome (good news; the positive possible selves, or PPS), and the future selves associated with a negative outcome (bad news; the negative possible selves, or NPS). Little is known about the implications these selves hold for psychological adjustment during these acute moments of

uncertainty. In our studies, we examine these dynamics in two contexts: health and professional uncertainty. Waiting periods and other experiences of acute uncertainty represent a ubiquitous aspect of modern life, and this is particularly so within the domain of medicine and health. For example, individuals often struggle with uncertainty while awaiting the results of medical tests (Sweeny & Cavanaugh, 2012). On a more protracted scale, individuals who have experienced certain health conditions (e.g., cancer) that are now in remission live their lives in a perennial waiting period, consistently grappling with the possibility that said health condition may return. In both cases, the PPS embodies a future in which the self avoids the onset or return of the relevant health condition, while the NPS embodies a future in which the self is forced to cope with the onset or return of the condition.

The academic domain represents an additional context relevant to understanding possible selves during waiting periods. Within this context, individuals frequently engage in various types of evaluative "performances" (e.g., exams, projects) and then endure the waiting period between the performance and receipt of the corresponding evaluation. In the interim, people can do little to nothing to influence the likelihood of actualizing their PPS or NPS. For example, after completing the bar exam, law graduates must navigate a stressful four-month waiting period before learning whether they passed or failed (e.g., Sweeny & Andrews, 2014).

The Current Studies

In the series of studies presented here, we examined the correlates and implications of possible-self salience in three samples, each corresponding with an important period of acute uncertainty about a future outcome. In Studies 1a and 1b, we considered possible-self salience among cancer survivors and romantic partners of cancer survivors. We examined the salience of PPS (in which the cancer remains in remission) and NPS (in which the cancer returns) in relation

to a set of psychological well-being and physical health indicators. In Study 2, we built upon and extended the results of our initial study by considering the trends of PPS and NPS salience throughout the entirety of a lengthy but finite waiting period: the wait for bar exam results. In addition to exploring possible-self salience in a context distinct from Study 1, in Study 2 we were able to assess the degree of fluctuation in, and trajectories of, this salience throughout the course of the applicable period of uncertainty, as well as examine relations between the salience of possible selves and relevant outcomes while controlling for related personality constructs (e.g., optimism, neuroticism). Finally, in Study 3 we experimentally primed specific possible selves (highlighting either the PPS or NPS) to test the causal effects of these selves. In all studies, we hypothesized that PPS salience would be positively associated with indicators of psychological adjustment, whereas NPS would correspond negatively with these indicators. This research is the first known to consider possible-self salience within the context of periods of acute uncertainty about a future outcome.

Study 1a

In Study 1a, individuals who had received a diagnosis of cancer at some point in their lives but were not currently undergoing treatment for this illness were targeted for study recruitment. Thus, the period of uncertainty here was indefinite, bookended by an event (i.e., the cancer's return) that may or may not occur, at an unknown point in the future. Nonetheless, we contend that cancer survivors experience uncertainty about a future cancer diagnosis, particularly a return of the cancer they have previously survived, as a more acute form of uncertainty compared to those who have not yet faced cancer. Studies 2 and 3 will extend this work to finite periods of uncertainty.

Method

Participants. Cancer survivors (N = 187; 44% female; M_{age} = 39 years; 76% White/Caucasian, 10% Black or African-American, 6% Hispanic/Latinx, 6% Asian, 1% Native American, 1% multiple) were recruited via Amazon's Mechanical Turk (for discussion of the appropriateness of this recruitment method, see Buhrmester, Kwang, & Gosling, 2011). To be eligible for the study, participants must have received a cancer diagnosis at some point in their life and not be currently undergoing treatment for cancer.[2] The most common types of cancer reported were breast (23%), skin (21%), cervical (8%), testicular (7%), lung (6%), and colorectal (6%). The average time since diagnosis was 6.7 years (range: 2 weeks to 33 years). We sought 200 participants to provide ample power to for correlational and regression analyses; removing ineligible participants (e.g., participants who skipped the relevant measures, participants whose written responses made clear that they were not cancer survivors) resulted in a total sample of 187.

Procedure. After participants completed a screening questionnaire to ensure their eligibility, we administered a survey that inquired about aspects of their cancer experience, reflections on cancer's effect on their life, and current psychological well-being and physical health. Pertinent to the current analysis, participants were also prompted to imagine two possible futures: one in which they experienced a recurrence of cancer, and one in which their cancer remained in remission. After each writing prompt, participants rated the salience of each of these possible futures. Full questionnaires for Studies 1a and 1b are available on the Open Science Framework (https://osf.io/9sdmw/).

Measures

[2] We used treatment status rather than remission status as our exclusion criterion. In this study, 84% of participants reported that they were in full remission, 10% were in partial remission, and 6% were not in remission. The findings remain consistent when only including participants in full remission.

Possible selves. The prompts to consider possible future selves were as follows (NPS and PPS, respectively, in parentheses):

> We would like you to now consider the life you imagine in the future [if your cancer comes back / if you remain in remission (or cancer-free) for the rest of your life]. What sorts of things do you think you will be doing if [your cancer comes back / if you remain in remission]? What will your life be like? In the space below, write a description of the things you imagined. Please be as specific as you can.

After responding to each prompt, participants completed a 3-item measure of salience (King & Raspin, 2004; King & Smith, 2004) "How easy was it for you to imagine your life in this scenario?" "How clear was the mental picture you imagined?" "How much do you think about this possible future?"; 1 = *not at all*, 7 = *extremely*; for PPS, $M = 5.72$, $SD = 1.20$, $\alpha = .82$; for NPS, $M = 4.79$, $SD = 1.50$, $\alpha = .74$).

Physical health and psychological well-being. Physical health and psychological well-being were operationalized in several ways. First, participants completed the Brief Symptom Inventory (BSI-18; Derogatis, 1993). This measure includes three subscales (6 items per subscale; for all, extent of symptoms in the past week; 1 = *not at all*, 5 = *very much*): somatization (e.g., numbness, faintness; $M = 1.76$, $SD = .88$, Cronbach's $\alpha = .90$), depression (e.g., feeling blue, feeling lonely; $M = 1.96$, $SD = 1.03$, $\alpha = .93$), and anxiety (e.g., nervousness, feeling restless; $M = 2.18$, $SD = 1.11$, $\alpha = .94$). Second, participants completed the Satisfaction with Life Scale (Diener, Emmons, Larsen, & Griffin, 1985; 5 items, e.g., "In most ways my life is close to my ideal," "I am satisfied with my life"; 1 = *strongly disagree*, 7 = *strongly agree*; $M = 4.50$, $SD = 1.48$, $\alpha = .92$). Third, participants completed a modified version of the Impact of

Cancer Scale (Zebrack, Ganz, Bernaards, Petersen, & Abraham, 2006). This scale assessed various domains of life that might be affected by cancer, such as life outlook (e.g., "I learned something about life because of having had cancer"), body ("I feel disfigured"), and health ("I worry about my health"). We removed items about professional and romantic life, leaving 57 items (1 = *strongly disagree*, 5 = *strongly agree*) in two broad composites: positive impact (M = 3.59, SD = .69, α = .90) and negative impact (M = 2.95, SD = .77, α = .90).

Results and Discussion

Bivariate correlations among variables for all studies are presented in Table 1.

Participants indicated that their PPS were more salient than their NPS (see above for means and *SD*s), $t(185) = 8.82$, $p < .0001$, $r_{es} = .54$. Surprisingly, salience ratings of PPS and NPS were positively correlated, $r(186) = .46$, $p < .0001$, pointing to the possible existence of a general individual difference in possible-self salience during waiting periods, regardless of valence. As a result, we included both salience measures in all analyses associating the salience of future selves with well-being and health.

As hypothesized, more salient PPS were generally associated with better well-being, and more salient NPS were generally associated with poorer well-being—although results were more consistent for PPS salience. Specifically, controlling for NPS salience, participants with more salient PPS reported less somatization, less depression, less anxiety, greater satisfaction with life, and a more positive impact of cancer (Table 2). Controlling for PPS salience, participants with more salient NPS reported greater depression and anxiety.[3]

[3] The pattern of results was nearly identical when examining the three salience items separately, with the exception that the item "How clear was the mental picture you imagined?" was unrelated to depression and anxiety for participants' NPS, and the item "How much do you think about this possible future?" was only weakly related to anxiety for participants' PPS.

The current study provided strong initial support for the hypothesis that a more salient PPS contributes to greater psychological adjustment, and somewhat weaker support for the link between NPS salience and adjustment. This study also encouragingly revealed that, among cancer survivors an average of approximately seven years following diagnosis, PPS (life-long remission) were more salient than NPS (cancer recurrence).

As anyone who has had a close family member diagnosed with cancer can attest, however, this illness is not experienced in isolation (Kayser, Watson, & Andrade, 2007). Indeed, cancer typically reverberates throughout one's social network, changing its composition substantially. One individual substantially affected by such a diagnosis is the cancer patient's romantic partner (e.g., Feldman & Broussard, 2006). In Study 1b, we built upon and extended the results of Study 1a by determining whether a similar pattern of findings would emerge among cancer survivors' romantic partners.

Study 1b

In Study 1b, we shifted the focus away from the possible selves of cancer survivors themselves and towards the possible selves relevant to these survivors' romantic partners. Just as is true for cancer survivors, these romantic partners are also in a waiting period, living with the possibility of their partner's cancer returning at some unknown point in the future.

Method

Participants and procedure. Romantic partners of cancer survivors (N = 214; 52% female; M_{age} = 37 years; 79% White/Caucasian, 7% Black or African-American, 4% Hispanic/Latinx, 5% Asian, 1% Native American, 4% multiple/other) were recruited via Amazon's Mechanical Turk. To be eligible for this study, participants' romantic partner had to have received a cancer diagnosis at some point during their relationship and not currently be

undergoing treatment for cancer.[4] The most common types of cancer reported were breast (25%), skin (18%), prostate (9%), lung (6%), colorectal (6%), and thyroid (4%). The average time since diagnosis was 4.6 years (range: <1 month to 27 years). Only 5% of participants had themselves received a diagnosis of cancer at some period in their lives. The average relationship length of our participants was 11 years and 5 months (range = 8 months to 70 years), and 57% of participants were married, 26% cohabitating but not married, 7% in a serious dating relationship, and <1% in a casual dating relationship.

We again sought 200 participants to provide ample power to for correlational and regression analyses; in this case, several additional participants completed the survey before the cut-off of data collection. Procedures were nearly identical to Study 1a save for the fact that participants did not complete the impact of cancer scale (they instead completed a brief cancer worry scale) and the possible selves prompts were worded to refer to their romantic partners' cancer.

Measures.

Possible selves. The prompts used to assess possible future selves were identical to Study 1a, except the key part of the prompts were worded as "if your partner remains in remission (or cancer-free" for the rest of your life" (PPS) and "if your partner's cancer comes back" (NPS). The salience measures were identical to Study 1a (for PPS, $M = 5.59$, $SD = 1.37$, $\alpha = .88$; for NPS, $M = 4.65$, $SD = 1.50$, $\alpha = .78$).

[4] We again used treatment status rather than remission status as our exclusion criterion. In this study, 66% of participants indicated that their partner was in full remission, 20% in partial remission, and 13% not in remission. Likely due to the large drop in power, some findings (particularly those for NPS) become nonsignificant when only considering participants whose partner was in full remission. The findings remain the same as those reported below when considering participants whose partner was either in full or partial remission.

Health and well-being. Health and well-being were again operationalized as scores on the BSI-18 subscales (somatization: $M = 1.58$, $SD = .79$, $\alpha = .90$; depression: $M = 1.93$, $SD = 1.08$, $\alpha = .94$; anxiety: $M = 2.88$, $SD = 1.11$, $\alpha = .93$) and the Satisfaction with Life Scale ($M = 4.61$, $SD = 1.35$, $\alpha = .90$). In addition, participants completed a modified version of the 3-item McCaul Brief Worry Scale, originally designed to assess the intensity of worry about colon cancer ("Thinking about your partner, during the past week, how often have you worried about cancer?" 1 = *never*, 5 = *all of the time*; "Thinking about your partner, how bothered are you by thinking about cancer?" 1 = *not at all*, 5 = *extremely*; "Thinking about your partner, how worried are you about cancer?" 1 = *not at all*, 5 = *extremely*; $M = 2.88$, $SD = 1.11$, $\alpha = .89$).

Results and Discussion

Participants once again indicated that their PPS was more salient than their NPS (see above for means and *SD*s), $t(213) = 8.66$, $p < .0001$, $r_{es} = .51$. As in Study 1a, salience ratings for PPS and NPS were positively correlated, $r(214) = .39$, $p < .0001$, and thus analyses associating the salience of future selves with well-being included both salience measures in all analyses to control for this broader personality characteristic.

More salient PPS were again associated with better well-being, and more salient NPS were generally associated with poorer well-being—although as in Study 1a, results were more consistent for PPS. Controlling for NPS salience, participants with more salient PPS reported less somatization, less depression, less anxiety, greater satisfaction with life, and less worry about cancer (Table 2). Controlling for PPS salience, participants with more salient NPS reported greater depression, more worry about cancer, and marginally more somatization. These results were consistent with those of Study 1a, as well as our hypotheses. Of course, as noted earlier, possible selves are relevant in a broad set of waiting periods, within any number of domains. It

remains an open question as to whether the relationships identified in Studies 1a and 1b are specific to health-related waiting periods or, alternatively, represent a broader psychological reality. In Study 2, we sought to determine the tenability of these possibilities by considering the functioning of possible selves within a qualitatively different waiting period.

Study 2

Taken together, Studies 1a and 1b provide clear evidence for an association between the salience of future selves and well-being. However, in these studies the domain of future selves considered was specific to cancer, and the timeline for the "future" relevant to possible selves was abstract. That is, the applicable cancer could return in a month, 50 years, or never (ideally). In addition, the cross-sectional nature of these studies leaves open the possibility of reverse causality (i.e., people with greater well-being might experience PPS as more salient and NPS as less salient) and third-variable explanations. On the basis of the cross-sectional nature of these studies, issues of temporal stability in the salience of possible selves also remains an open and unaddressed question.

In Study 2, we sought to provide convergent evidence for the links between salience of possible selves and well-being in a longitudinal study that addressed a stressful and acute moment of professional uncertainty, with a clear point of feedback at which future self would come to fruition. Doing so took the form of examining the salience of possible selves in the context of law graduates awaiting their results on the bar exam. In addition, we assessed participants' outcome expectations (e.g., perceived likelihood of passing the bar), as well as their outcomes themselves (i.e., whether they passed or failed the bar exam) and their reactions to these outcomes.

Method

Participants. The current data were drawn from a larger study examining functioning during the wait for bar exam results. Although data drawn from this study have appeared in print elsewhere (see Rankin, Walsh, & Sweeny, in press; Sweeny & Howell, 2017), the current project represents the sole investigation to include measures of the salience of possible selves. Law graduates (N = 106; 61% female; M_{age} = 28 years; 61% White/Caucasian, 2% Black or African-American, 7% Hispanic/Latinx, 18% Asian, 1% Native Hawaiian or other Pacific Islander, 11% multiple/other) were recruited via law school and bar association listservs to participate in a study about the July 2016 California bar exam. Participants were compensated up to $80 in Amazon.com gift cards, depending on the number of surveys they completed. Although a larger sample would have been optimal for longitudinal and multilevel modeling, we were only able to recruit 106 participants with the funding and time available.

Procedures. Participants were recruited in the two months leading up to the bar exam, and all participants completed baseline measures (not pertinent to this paper) prior to taking the exam. Participants then completed the first survey during the wait for bar exam results within three days following the last day of the bar exam, three additional waiting surveys throughout the four-month wait for exam results, and a final waiting survey within 24 hours prior to learning whether their passed the exam (exam results are posted online at the end of November). The middle three surveys were staggered such that a subgroup of participants completed a survey each week, with surveys spaced approximately five weeks apart for each participant. This was done to maximize coverage of the waiting period (i.e., some participants complete surveys each week) while also minimizing cost and participant burden.

Participants also completed surveys after learning their exam results; for the purpose of our analyses, their exam outcome (pass/fail) was the only pertinent measure in these surveys

(68% passed the exam; n = 72). Full questionnaires are available on the Open Science Framework (https://osf.io/mpnqt/).

Measures. Measures relevant to this paper were completed during the five waiting period surveys, including measures of well-being, open-ended descriptions of PPS and NPS (at the start and end of the waiting period), and ratings of the salience of these possible selves. Due to a clerical error, ratings of NPS salience were omitted from the first waiting survey, so analyses focus on the second through fifth surveys.

Possible selves. Participants responded to open-ended prompts regarding their PPS and NPS at two points: near the beginning of the wait for their bar exam results (first waiting period survey for positive future self, second waiting period survey for negative future self) and within 24 hours prior to learning their result. Although we focus on the salience measure for our analyses, we present the open-ended prompt here in the interest of thoroughness (PPS and NPS, respectively, in parentheses):

> We would like you to now consider the life you imagine in the future if you (pass/fail) the bar exam. What sorts of things do you think you will be doing if you (pass/fail) this test? What will your life be like? In the space below, write a description of the things you imagined. Please, be as specific as you can.

The salience measures described in Studies 1a and 1b were completed in all waiting period surveys (with the exception of negative future self in the first survey). In the surveys that did not ask participants to write about their possible selves, we nonetheless included a similar version of the prompt to introduce the salience items (for PPS, M = 5.55, SD = 1.02, α = .79; for NPS, M = 4.33, SD = 1.44, α = .84). When presented together, participants first indicated the salience of a

positive future self, then the salience of a negative future self (reversing the order of Studies 1a and 1b).

Health and well-being. Health and well-being were operationalized in several ways, including measures of both psychological and physical health. First, participants completed a modified version of the Affective Adjective Checklist to assess state emotions (Warr, Barter, & Brownbridge, 1983). The measures assesses positive emotions with four items (happy, pleased, joyful, enjoyment/fun; 1 =*strongly disagree*, 7 = *strongly agree*; across surveys, $M = 5.36$, $SD = .90$, αs > .85) and negative emotions with four items (angry/hostile, frustrated, depressed/blue, unhappy; across surveys, $M = 3.84$, $SD = 1.20$, αs > .84).

Second, participants indicated how worried they were about their bar exam result with three items that captured both the affective and cognitive components of worry (see Sweeny & Dooley, 2017; "I feel anxious every time I think about the bar exam," "I am worried about my bar exam result," "I can't seem to stop thinking about the bar exam"; 1 = *strongly disagree*, 5 = *strongly agree*; $M = 4.42$, $SD = 1.24$; αs > .77).

Third, participants completed five items adapted from the Medical Outcomes Study 36-item Short-Form Health Survey (SF-36; Ware & Sherbourne, 1992) assessing physical health functioning. One item assessed the extent to which health problems have interfered with social activity ("During the past week, to what extent has your physical health interfered with your normal social activities with family, friends, neighbors, or groups?"; 1 = *not at all*, 5 = *extremely*), and four items assessed other types of functioning problems due to physical health in the past week ("cut down on the amount of time you spent on work or other activities," "accomplished less than you would like," "were limited in the kind of work or other activities," "had difficulty performing the work or other activities (for example, it took extra effort)"; 1 = *not*

at all, 5 = *very much*). These items were strongly intercorrelated and thus averaged into a physical health composite, with higher scores indicating poorer health (M = 1.80, SD = .73; αs > .90).

Fourth and finally, participants completed the Pittsburgh Sleep Quality Index (PSQI; Buysse, Reynolds, Monk, Berman, & Kupfer, 1989). For the purpose of our analyses, we focus on 14 items assessing sleep hygiene and quality (e.g., "During the past week, how often have you had trouble sleeping because you have bad dreams?" "During the past week, how often have you taken medicine…to help you sleep?" 1 = *never*, 5 = *every night*). For simplicity, we averaged responses to these items into a composite, where higher scores indicate poorer sleep, rather than using the PSQI's complex scoring procedure (M = 2.08, SD = .55; αs > .80).

Outcome expectations. Study 2 provided an opportunity to examine possible selves in the context of an imminent and objective outcome (i.e., the results of the bar exam). As a result, we included in our analyses several measures of outcome expectations. First, participants indicated the likelihood that they would pass the bar exam ("Please estimate the probability that you will pass the bar exam"; M = 67.85, SD = 18.12). Second, participants reported their engagement in two strategies to manage their expectations about the future: the extent to which they were bracing for the worst ("I'm bracing for the worst when it comes to my bar exam result," "I want to make sure I keep my expectations low when it comes to my bar exam result"; 1 = *strongly disagree*, 7 = *strongly agree*; M = 4.30, SD = 1.50; αs > .77) and efforts to remain hopeful and optimistic, referred to as positive expectation management ("I'm hoping for the best when it comes to my bar exam result," "I'm trying to be optimistic about my bar exam result"; 1 = *strongly disagree*, 7 = *strongly agree*; M = 5.97, SD = .92; αs > .68).

Reactions to news. Within 24 hours following the release of bar exam results, participants completed a final survey that included measures of emotions (identical to those used during the waiting period; negative emotions, M = 2.16, SD = 1.69, α = .94; positive emotions, M = 5.02, SD = 2.41, α = .98) and the Bad News Response Scale (Sweeny & Legg, 2014), which assesses three responses to bad news (completed only by participants who failed): denial (5 items; e.g., "I feel unable to respond"; M = 4.15, SD = 1.59, α = .84), active change (5 items; e.g., "I'm taking immediate action"; M = 4.42, SD = 1.46, α = .87), and acceptance (5 items; e.g., "I've accepted that I can't change the situation"; M = 5.26, SD = 1.20, α = .79; for all, 1 = *not at all*, 7 = *very much*).

Covariates. Prior to taking the bar exam, participants also completed the 10-item Life Orientation Test – Revised (LOT-R; Scheier, Carver, & Bridges, 1994), the 14-item version of the Freiburg Mindfulness Inventory (FMI; Walach et al., 2006), and the Ten Item Personality Inventory (TIPI; Gosling, Rentfrow, & Swann, 2003). The LOT-R, which assesses trait optimism, contains item such as "In uncertain times, I usually expect the best" that are rated on a seven-point Likert type scale (M = 4.63, SD = 1.14, α = .84). The FMI, which assesses trait mindfulness, contains items such as "I perceive my feelings and emotions without having to react to them" rated on a five-point Likert type scale (M = 3.31, SD = 0.59, α = .82). The TIPI uses pairs of items to tap the five personality traits contained within the five-factor model (i.e., extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience) and includes items such as "I see myself as someone who is extraverted, enthusiastic" that are rated on a seven-point Likert scale (extraversion: M = 3.96, SD = 1.67, r = .67; agreeableness: M = 4.50, SD = 1.10, r = .16; conscientiousness: M = 4.57, SD = 1.19, r = .44; neuroticism: M = 3.32, SD = 1.32, r = .53; openness: M = 4.90, SD = 1.15, r = .26).

Results and Discussion

Possible-self salience and exam performance. Consistent with Studies 1a and 1b, PPS were more salient than NPS at each time point (Table 3). However, in contrast to Studies 1a and 1b, the salience of NPS and PPS were uncorrelated at each time point (Table 3).

We also considered the role of exam performance on the salience of possible selves. That is, perhaps participants who performed better on the exam, and thus ultimately passed, experienced their PPS as more salient (reasonably so)—and the reverse for participants who ultimately failed. The salience of participants' PPS did not differ by exam outcome at any point during the waiting period. In contrast, at most time points, participants who ultimately failed reported that their NPS were more salient than it was for participants who passed (Table 4). The exception to this pattern was the "moment of truth," shortly before participants learned their exam result. In general, people tend to be quite pessimistic at the moment of truth, regardless of their ultimate outcome (e.g., Sweeny, Carroll, & Shepperd, 2006)—and in fact, participants in our study reported a similarly salient NPS at this point regardless of whether they passed or failed.

Possible-self salience across the waiting period. Before considering temporal trends in possible-self salience, we first examined correlations among possible-self salience across the study to examine rank-order stability. Overall, stability was quite high. The average correlation among NPS salience ratings over time was r = .64 (range .57 to .69). The average correlation among PPS salience ratings over time was a bit lower, but still quite high, at r = .51 (range = .33 to .65).

For the remainder of our analyses, we used multilevel modeling to account for the longitudinal nature of our data. Using the SAS 9.4 PROC MIXED procedure, we first examined

longitudinal patterns in the salience of PPS and NPS. Time was centered to reflect weekly change in salience. Longitudinal models suggested no substantial change over time in the salience of PPS; although adding linear time to the model did improve fit, $\triangle\chi^2 = 15.3$, $p < .01$, the linear fixed effect was not significant, $b = .004$ [95% CI: -.01, .02], $t(122) = .52$, $p = .61$. Similarly, further adding a quadratic term improved fit, $\triangle\chi^2 = 15.4$, $p < .01$, but neither the linear, $b = .004$ [95% CI: -.01, .02], $t(121) = .55$, $p = .59$, nor quadratic term, $b = .001$ [95% CI: -.002, .005], $t(122) = .85$, $p = .40$, was statistically significant.

In contrast, longitudinal growth curve modeling revealed that, for NPS, the best-fitting model included both linear and quadratic terms, $\triangle\chi^2 = 16.9$, $p < .01$ (compared to a linear growth model); the fixed effect of quadratic time was significant, $b = .01$ [95% CI: .005, .02], $t(107) = 3.71$, $p < .01$, and the fixed effect of linear time was marginally significant, $b = -.02$ [95% CI: -.05, .001], $t(83.4) = -1.91$, $p = .06$. The positive quadratic pattern suggests that NPS was most salient at points in the waiting period that tend to be most stressful, namely shortly after the exam and at the moment of truth (e.g., Sweeny & Andrews, 2014).

Health and well-being. Next, we examined associations between the salience of possible selves and health and well-being. To do so, we ran multilevel models that nested measurement point (Level 1) within participants (Level 2) to predict each marker of adjustment from person- and grand-mean centered salience (addressing PPS and NPS in separate models because they were uncorrelated in this study), controlling for linear and quadratic time (to be conservative, given consistent quadratic patterns in well-being in this context; e.g., Sweeny et al., 2016; Sweeny & Andrews, 2014), exam outcome (pass or fail), interactions between time and all other predictor variables, and interactions between predictor variables. Tables 5 and 6 present key model parameters.

Turning first to PPS, variability in possible-self salience between participants predicted lower negative emotion, greater positive emotion, better subjective health, and better sleep. Within-person salience variability predicted marginally less negative emotion and greater positive emotion, such that when participants reported that their PPS were particularly salient, they also reported somewhat lower levels of negative emotion and somewhat high levels of positive emotion.

Turning to NPS, variability in possible-self salience between participants predicted worry, negative emotion (marginally), and poor sleep, such that participants for whom their NPS were generally more salient also reported generally poorer well-being overall. Within-person salience variability predicted worry and negative emotion (again, marginally), such that when participants reported that their NSFs were particularly salient, they also reported particularly high levels of worry and negative emotions.[5]

To rule out the effect of key personality constructs, we also ran the models controlling for dispositional optimism, trait mindfulness, and the traits contained with the five factor model. The findings remained largely the same under these conditions, although the between-subjects effect of PPS on positive emotion became marginally significant, the between-subjects effect of PPS on sleep became non-significant, the between-subjects effect of NPS on negative emotion became

[5]We also explored the possibility that possible-self salience may be more or less predictive of well-being when participants are more or less optimistic about their chances of passing the bar exam. For these models, we included grand-mean centered and person-mean centered estimates and their interactions with all other model terms. These analyses revealed an interaction between within-person expectations and within-person NPS salience on negative emotion, such that at times when participants were particularly pessimistic about their chances of passing, NPS salience was more strongly predictive of negative emotion. Similarly, although within-person NPS salience did not predict positive emotion or poor sleep overall, it did interact with within-person expectations. In both cases, NPS salience was more strongly predictive of well-being (lower positive emotion, poorer sleep) when participants were particularly pessimistic. Although speculative, these findings may suggest that negative possible selves are more powerful to the extent they accord with pessimistic beliefs about the future. No interactions with within-person PPS salience emerged.

non-significant, and the within-subject effect of NPS on health became marginally significant (previously non-significant).

Outcome expectations. We took a similar analytic approach to explore links between possible-self salience and future outlooks, using multilevel modeling to predict participants' own outcome predictions, bracing for the worst, and positive expectation management using the same set of predictors in the well-being models. For PPS salience, variability across participants predicted greater optimism about the exam outcome and more positive expectation management; within-person salience variability was again unrelated to future outlooks. For NPS salience, variability between participants in possible-self salience predicted greater pessimism about the exam outcome, more bracing, and less positive expectation management. Within-person salience variability was unrelated to future outlooks.

We again ran the models controlling for the personality constructs listed above. The findings remained largely comparable, save for the fact that the between-subjects effect of PPS on outcome expectations and the between-subjects effect of NPS on positive expectation management became non-significant.

Responses to good and bad news. Finally, we examined associations between PPS salience, NPS salience, and responses to passing and failing the bar exam by predicting responses to news simultaneously from average PPS and NPS salience across the waiting period (arguably resulting in a more reliable measure of PPS and NPS during the waiting period). When examining associations with emotional responses to news, we also controlled for average positive or negative emotion during the waiting period.

Among participants who passed the exam (n = 73), greater PPS salience predicted greater positive emotion following good news, β = .23, p = .050, whereas NPS salience was

unassociated with positive emotion, β = -.09, p = .47. Greater NPS salience was marginally associated with negative emotions among those who passed, β = .22, p = .07, whereas PPS salience was unassociated with negative emotions, β = .14, p = .28.

Among participants who failed the exam (note the small sample size for these analyses, n = 34), neither PPS salience, β = -.01, p = .98, nor NPS salience, β = .07, p = .73, was associated with positive emotion. Similarly, neither PPS salience, β = .20, p = .28, nor NPS salience, β = .04, p = .81, was associated with negative emotion among those who failed. However, NPS salience and PPS salience were associated with significantly and marginally greater acceptance following failure, βs = .62 and .25, ps = .0002 and .097, respectively. Neither PPS salience nor NPS salience were associated with denial or active change, βs < .24, ps > .19.

Study 3

Studies 1a, 1b, and 2 provide considerable evidence for the benefits of a salient PPS and the harms of a salient NPS during, and following, periods of uncertainty. However, these studies were correlational in nature and thus not completely immune to the possibility of reverse causality (i.e., more well-adjustment people generate more salient PPS and less salient NPS) and third-variable explanations. To test our causal hypotheses regarding the benefits of salient PPS and the harms of salient NPS, we conducted a third study. In this third study, we recruited people who were currently awaiting the result of a medical test and then randomly assigned them to reflect on either a future in which the test revealed good news (PPS) or a future in which revealed bad news (NPS).

Method

Participants. Healthcare consumers (N = 156; 50% female; M_{age} = 35 years; 70% White/Caucasian, 12% Black or African-American, 4% Hispanic/Latinx, 9% Asian, 2% Native

American, 2% multiple) were recruited via Amazon's Mechanical Turk.[6] Potential participants were eligible for the study if they had undergone a medical test within the past two weeks for which they had not yet received the result. The most common types of tests reported were blood tests (29%), MRIs (14%), Pap tests (9%), biopsies (6%), and mammograms (6%). The average number of days since the test was 6.5 days. We sought 200 participants to ensure more-than-sufficient power for our group comparisons, but removing participants who failed to follow directions (e.g., indicating on the screening questions that they were eligible and then indicating "none" for test type) reduced our sample to 156.

Procedure. After providing basic information about the nature of their medical tests, participants indicated what they would consider to be a good result from the test and a bad result from the test. Participants were then randomly assigned to one of two conditions: a *PPS condition* in which they imagined a future in which their test resulted in good news (n = 79) and an *NPS condition* in which they imagined a future in which their test resulted in bad news (n = 77). Participants responded to two prompts. First, they responded to the following:

> Imagine that you have just received [good / bad] news regarding your recent medical test. How would this news make you feel? In the space below, write a description of the things you imagined. Please be as specific as possible.

They then responding to the following:

> Next, we would like you to now more broadly consider the life you imagine in the future if you receive [good / bad] news on your recent medical test. How do you think you will

[6] Due to a survey error, an additional 97 participants completed the survey but were not randomly assigned into either experimental condition. Specifically, these participants were prompted to answer questions about their possible selves but did not write about any possible self. We suspect that this survey error created considerable confusion at the start of the survey for these participants (because they were asked about "this scenario" out of context), and thus we opted to drop them from the study rather than interpreting their emotional state as a type of control condition.

feel after receiving this news? In what ways will your life change? In the space below, write a description of the things you imagined. Please be as specific as possible.

Full questionnaires are available on the Open Science Framework (https://osf.io/uw2dq/).

Measures. Following the writing prompts, participants completed a measure of state emotions adapted from the GRID instrument (Scherer, 2005; Fontaine et al., 2007). This measure includes 24 emotion terms, including nine positive emotions (e.g., pleasure, pride, interest; M = 4.20, SD = 1.53, α = .93) and 15 negative emotions (e.g., shame, despair, anxiety; M = 3.32, SD = 1.59, α = .96). Participants also indicated how worried they were about their test result with one item ("How worried are you about of your medical test right now?" M = 3.51, SD = 1.46) For all items, participants were asked to indicate how they felt in the moment.

Results and Discussion

We first conducted independent-samples t-tests, comparing emotions and worry across experimental conditions. Consistent with findings in Studies 1 and 2, participants who considered their NPS reported more negative emotion (M = 3.62, SD = 1.48) than did participants who considered their PPS (M = 3.30, SD = 1.65), $t(153) = 2.32$, p = .02, d = .38. Similarly, participants who considered their NPS reported somewhat more worry (M = 3.70, SD = 1.39) than did participants who considered their PPS (M = 3.32, SD = 1.51), $t(153) = 1.66$, p = .099, d = .27. However, we found no difference between the PPS (M = 4.23, SD = 1.53) and NPS conditions (M = 4.17, SD = 1.53) in positive emotion $t(153) = -.28$, p = .78, d = .05.

General Discussion

Over the course of three studies, we examined the functioning of possible selves within the context of waiting periods. Drawing from earlier research underscoring the importance of possible selves' salience (e.g., King & Hicks, 2007; Sheldon & Lyubomirsky, 2006) we collected

ratings of the degree to which individuals actively reflected upon two distinct selves: one pertaining to a positive resolution to the waiting period in question (positive possible selves; PPS) and the other corresponding to a negative resolution following this period (negative possible selves; NPS).

In Study 1, results indicated that, for both cancer survivors and their romantic partners, PPS salience was positively, and NPS salience was negatively, associated with psychological adjustment. Of course, these studies considered participants occupying ambiguous periods of uncertainty, such that one's cancer may or may not return at any point in the future. In some sense, everyone is in this type of waiting period with regard to the possibility of developing cancer. However, cancer survivors are likely more acutely and persistently aware of this possibility, particular when it comes to a relapse of their previous cancer diagnosis.

Study 2 built upon and extended these results to a finite period of uncertainty. Results aligned with those of Study 1 insofar as PPS salience positively predicted many health and well-being indicators, whereas NPS salience negatively related to a subset of these measures. Possible-self salience also predicted responses to good and bad news in complex ways, such that a salient PPS during the waiting period seemed to heighten excitement after passing the exam, whereas the salience of either possible self seemed to promote acceptance after failing the exam. We suspect that the latter finding reflects the downstream benefits of efforts to consider various future outcomes during waiting periods, which may prepare people to accept their fate when bad news arrives. However, the finding regarding PPS salience and responses to good news is surprising, given extensive evidence that bracing for the worst, not assuming the best, heightens excitement in the face of good news (e.g., Sweeny, Carroll, & Shepperd, 2006; Sweeny et al., 2016). It remains possible that participants who had a clear vision of a future in which they

passed the bar exam spent more time in excited anticipation about that future and thus were prepared to embrace their good fortune when it arrived. Future studies should examine the relevance of possible selves to reactions to future outcomes to replicate and clarify this relationship.

Finally, in Study 3 we explored possible-self salience and psychological adjustment using an experimental paradigm and confirmed the existence of a causal link between possible-self salience (as manipulated by a writing task) and reports of in-the-moment negative emotion and worry, but not positive emotion. It may be the case that associations between possible-self salience and positive emotions observed in Studies 1 and 2 reflect a broader sense of positivity about the future (although we would note that the relationship remained robust in Study 2 even after controlling for several types of future outlooks), whereas the link between possible-self salience and negative experiences is at least in part a causal one.

The Salience of Possible Selves

Salience reflects both the frequency with which individuals think about the applicable possible self and the vividness of this potential future self (King & Smith, 2004). In her foundational work on the topic, King (King & Hicks, 2007; King & Raspin, 2004; King & Smith, 2004) noted that the salience of people's best possible selves serves as a positive predictor of well-being, whereas the salience of people's lost possible selves (e.g., the straight possible selves of gay men and lesbians) negatively related to well-being. Faced with these results, King proposed that happiness entails embracing the best future self possible, while refraining from ruminating on selves that may be appealing in some ways but simply will never be.

Our studies contribute to the literature on possible-self salience in at least three ways. First, instead of considering best possible selves and lost possible selves (à la King & Smith,

2004), we focused on the possible selves applicable to periods of uncertainty—that is, the wait for an uncertain future outcome. During such periods, at least two possible selves are likely relevant: the PPS, which represents a future self projected to be actualized if the period of uncertainty ends with a positive outcome (e.g., continued remission of an illness, passing an exam, a hoped-for medical test result), and the NPS, which represents the self that awaits individuals if this period ends in an undesirable outcome (e.g., the return of an illness, academic failure, a dreaded medical test result).

Second, in Study 1b, we probed participants for what might be called their *vicarious* possible selves, as these selves pertained to futures in which their partner's health varied, rather than their own. Although this approach is conceptually similar to Study 1a, given that romantic partners likely feel the possibility of a romantic partner's cancer relapse as a threat to their own well-being as well as their partner's, the findings from Study 1b notably extend research on both periods of stressful uncertainty and possible selves. That is, these findings provide clear evidence that uncertainty about a close other's future outcome is felt acutely and personally, and one's possible selves clearly incorporate these vicarious outcomes into a holistic vision of the future one anticipates.

Third, and distinct from the work of King (King & Raspin, 2004; King & Smith, 2004), we considered a much wider array of indicators of psychological adjustment, including anxiety, depression, positive emotions, negative emotions, satisfaction with life, worry, somatization, physical health, and sleep quality. To our knowledge, our work represents the first to link aspects of possible selves (in this case, their salience) to key health indicators such as somatization and sleep quality, suggesting that possible selves may extend their reach beyond psychological well-being and get "under the skin" to affect physical health outcomes.

Limitations and Conclusions

Despite the contributions made by the current research, inherent limitations must be acknowledged. To begin, all of our samples were drawn from a North American cultural context. The self, however, has been recognized as a largely cultural enterprise (e.g., Henrich, Heine, & Norenzayan, 2010; Markus & Kityama, 1991). It follows that the results reported here may not translate to contexts distinct from the ones in which they were attained. In addition, across our studies, we relied exclusively on self-report measures. Although this methodology was ideal for assessing many of the constructs of central interest (e.g., possible-self salience), such an assessment technique is not without its drawbacks (e.g., Fiske, 2002). In future studies the self-reported measures of health used should be supplanted with additional, more objective measures (see Friedman & Kern, 2014).

Finally, our findings were not perfectly consistent across studies. Perhaps most notably, PPS and NPS salience were positively correlated in Studies 1a and 1b (*r*s of .46 and .39 respectively) but uncorrelated in Study 2. Although we can only speculate about this difference, we suspect that the time scale and abstractness of the uncertain outcomes in each study may be responsible. That is, participants in Study 2 considered possible outcomes that were only months or weeks in the future and that were quite concrete: On a particular day in November, they would see “pass” or “fail” on their computer screen. In contrast, participants in Studies 1a and 1b considered outcomes that could be years or even decades in the future and that are somewhat more abstract. A cancer relapse might be mild or severe, accompanied by painful symptoms or not, require treatment or not, and so forth. One’s ability to imagine these more abstract, far-future outcomes may be more dependent on individual differences than is one’s ability to imagine a near-future, concrete outcome.

In conclusion, we contend that the degree to which a given possible self is contemplated, and the degree of detail evident in this self while so doing, carries implications for functioning within a variety of contexts, including periods of acute uncertainty about a future outcome (see also, King & Hicks, 2007; Markus & Nurius, 1986; Oyserman et al., 2006; Sheldon & Lyubomirsky, 2006). To further flesh out the importance of possible selves, future researchers should incorporate a wider array of methodologies (e.g., experience sampling) and a consider a more diverse sample of uncertain periods. Doing so will no doubt reveal ways that thinking about one's future affects one's present.

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Table 1

Bivariate Correlations Among Study Variables

Study 1a	PPS	NPS	Somat.	Depress.	Anxiety	Life satis.	Positive impact	Negative impact
PPS salience	1.0	.46**	-.21**	-.20**	-.07	.20**	.38**	.02
NPS salience		1.0	.01	.10	.15*	-.01	.16*	.13^{+}
Somatization			1.0	.67**	.67**	-.39**	-.02	.47**
Depression				1.0	.82**	-.53**	.07	.49**
Anxiety					1.0	-.50**	.06	.52**
Life satisfaction						1.0	.13^{+}	-.43**
Positive impact							1.0	.34**
Negative impact								1.0

Study 1b	PPS	NPS	Somat.	Depress.	Anxiety	Life satis.	Cancer worry
PPS salience	1.0	.39**	-.29**	-.27**	-.19**	.29**	-.08
NPS salience		1.0	-.004	.02	.02	.05	.13^{+}
Somatization			1.0	.58**	.58**	-.27**	.22**
Depression				1.0	.78**	-.56**	.31**
Anxiety					1.0	-.47**	.37**
Life satisfaction						1.0	-.30**
Cancer worry							1.0

Study 2	PPS	NPS	Positive emotion	Negative emotion	Worry	Poor health	Poor sleep
PPS salience	1.0	-.01	.22*	-.18*	.14	-.11	-.08
NPS salience		1.0	-.22*	.10	.44**	.17^{+}	.30**
Positive emotion			1.0	-.33**	-.34**	-.52**	-.41**
Negative emotion				1.0	.48**	.54**	.49**
Worry					1.0	.47**	.54**
Poor health						1.0	.65**
Poor sleep							1.0

Note: $^{**}p < .01$; $^{*}p < .05$; $^{+}p < .10$. PPS = Positive possible self; NPS = Negative possible self. In Study 2, all variables are averaged across waiting period surveys.

Table 2

Associations between Salience of Possible Future Selves and Well-Being: Studies 1a and 1b

	Salience of Positive Future Self		Salience of Negative Future Self	
	β [95% CI]	*p*	*β [95% CI]*	*p*
Study 1a				
Somatization	-.27 [-.43, -.11]	.001	.14 [-.03, .30]	.099
Depression	-.32 [-.47, -.16]	.0001	.24 [.08, .40]	.003
Anxiety	-.17 [-.33, -.01]	.04	.23 [.06, .39]	.007
Satisfaction with life	.26 [.10, .42]	.002	-.13 [-.29, .03]	.11
Positive impact of cancer	.40 [.25, .55]	<.0001	-.03 [-.18, .13]	.71
Negative impact of cancer	-.03 [-.19, .13]	.72	.13 [-.03, .29]	.12
Study 1b				
Somatization	-.34 [-.48, -.21]	<.0001	.13 [-.01, .27]	.07
Depression	-.33 [-.47, -.18]	<.0001	.14 [.003, .28]	.046
Anxiety	-.23 [-.38, -.09]	.002	.11 [-.04, .25]	.14
Satisfaction with life	.32 [.17, .46]	<.0001	-.07 [-.21, .07]	.32
Cancer worry	-.15 [-.30, -.01]	.04	.19 [.05, .34]	.01

Note: Standardized beta coefficients and 95% confidence intervals from multiple regression analyses, predicting well-being simultaneously from salience of positive and negative future selves.

Table 3

Salience of Possible Future Selves Across Time (Study 2)

	Salience of Positive Future Self	Salience of Negative Future Self			
	M (*SD*)	*M* (*SD*)	*r (p)*	*t* (r_{es})	*p*
Waiting survey 1	5.63 (1.27)	N/A	N/A	N/A	N/A
Waiting survey 2	5.36 (1.22)	4.50 (1.58)	.01 (.93)	4.66 (.40)	<.0001
Waiting survey 3	5.58 (1.21)	4.06 (1.69)	-.06 (.53)	7.57 (.58)	<.0001
Waiting survey 4	5.59 (1.22)	4.28 (1.57)	.05 (.60)	7.13 (.56)	<.0001
Waiting survey 5	5.58 (1.45)	4.55 (1.80)	.14 (.16)	4.99 (.44)	<.0001

Note: r (p) represents the correlation between salience of positive and negative future selves at that time point. *t* (r_{es}) and the adjacent *p* are the outcome of a paired *t*-test comparing salience of positive and negative future selves, with an *r* effect size and *p*-value.

Table 4

Comparison by Outcome in Salience of Possible Future Selves (Study 2)

	Pass ($n \leq 72$)	Fail ($n \leq 34$)		
	M (*SD*)	*M* (*SD*)	*t* (r_{es})	*p*
Waiting survey 1				
Positive future self	5.56 (1.25)	5.59 (1.23)	0.14 (.01)	.89
Negative future self	N/A	N/A	N/A	N/A
Waiting survey 2				
Positive future self	5.42 (1.22)	5.16 (1.33)	-0.96 (.10)	.34
Negative future self	4.20 (1.51)	5.21 (1.34)	3.15 (.31)	.002
Waiting survey 3				
Positive future self	5.69 (1.22)	5.33 (1.17)	-1.37 (.14)	.17
Negative future self	3.90 (1.73)	4.53 (1.62)	1.76 (.17)	.08
Waiting survey 4				
Positive future self	5.64 (1.26)	5.40 (1.16)	-0.94 (.09)	.35
Negative future self	4.00 (1.61)	4.69 (1.44)	2.10 (.20)	.04
Waiting survey 5				
Positive future self	5.68 (1.46)	5.21 (1.45)	-1.46 (.15)	.15
Negative future self	4.44 (1.83)	4.82 (1.68)	0.98 (.10)	.33

Note: t (r_{es}) and the adjacent *p* are the outcome of a paired *t*-test comparing salience between participants who passed and failed, with an *r* effect size and *p*-value.

Table 5

Results from Multilevel Models Predicting Well-Being from the Salience of Future Selves (Study 2)

	Salience of Positive Future Self				Salience of Negative Future Self			
	b (*se*)	95% CI	*t*	*p*	*b* (*se*)	95% CI	*t*	*p*
Negative emotion								
Within-person	.22 (.13)	[-.02, .47]	1.78	.08	.17 (.10)	[-.03, .36]	1.71	.09
Between-persons	-.46 (.13)	[-.72, -.19]	-3.39	.001	.21 (.11)	[-.01, .42]	1.91	.06
Positive emotion								
Within-person	.17 (.10)	[-.02, .36]	1.75	.08	-.12 (.07)	[-.26, .03]	-1.62	.11
Between-persons	.21 (.09)	[.03, .39]	2.30	.02	-.06 (.07)	[-.20, .08]	-0.83	.41
Worry								
Within-person	-.03 (.10)	[-.22, .15]	-0.35	.73	.26 (.08)	[.11, .42]	3.30	.001
Between-persons	.10 (.15)	[-.20, .40]	0.67	.50	.42 (.10)	[.21, .63]	4.01	.0001
Poor health								
Within-person	-.03(.08)	[-.19, .12]	-0.43	.67	.09 (.06)	[-.02, .21]	1.58	.12
Between-persons	-.21 (.08)	[-.37, -.06]	-2.81	.006	.07 (.06)	[-.05, .19]	1.13	.26
Sleep disruption								
Within-person	-.001 (.04)	[-.08, .07]	-0.03	.98	.05 (.03)	[-.01, .11]	1.55	.12
Between-persons	-.11 (.06)	[-.23, -.001]	-1.99	.05	.15 (.04)	[.07, .23]	3.52	.0006

Table 6

Results from Multilevel Models Predicting Future Outlooks from the Salience of Future Selves (Study 2)

	Salience of Positive Future Self				Salience of Negative Future Self			
	b (*se*)	95% CI	*t*	*p*	*b* (*se*)	95% CI	*t*	*p*
Outcome expectations								
Within-person	.25 (.94)	[-1.61, 2.11]	0.26	.79	-1.11 (.73)	[-2.55, .34]	-1.50	.13
Between-persons	3.70 (1.81)	[.10, 7.29]	2.04	.04	-5.42 (1.26)	[-7.92, -2.91]	-4.29	<.0001
Bracing								
Within-person	-.09 (.11)	[-.30, .12]	-0.86	.39	.12 (.09)	[-.06, .29]	1.29	.20
Between-persons	-.14 (.17)	[-.46, .19]	-0.83	.41	.64 (.11)	[.43, .85]	6.10	<.0001
Positive expectation management								
Within-person	.03 (.09)	[-.14, .21]	0.38	.70	.07 (.07)	[-.08, .21]	0.90	.37
Between-persons	.56 (.10)	[.36, .76]	5.59	<.0001	-.25 (.09)	[-.42, -.07]	-2.85	.005

Note: Higher outcome expectations represent greater likelihood of passing. Higher bracing scores represent more effort to brace for the worst; higher positive expectation management scores represent more effort to remain hopeful and optimistic.